**IN THE SPECIFICATION**:

Please replace paragraph **[0019]** with the paragraph below:

**[0019]** The catalytic layer 15 may be made from porous or solid iridium oxide as well as from other catalysts such as manganese dioxide, platinum, and ~~catalesen~~ catalase (potato enzyme), all of which decompose peroxide. In this embodiment, when the hydrogen peroxide contacts the Iridium Oxide, the peroxide reacts to become hydrogen and oxygen. In other embodiments, as mentioned above, other catalysts could be used to promote different reactions with different materials and fluids flowing through the meso-porous material.

Please replace paragraph **[0030]** with the paragraph below:

**[0030]** As described throughout, this meso-porous layer may serve to filter certain materials and to retard the adherence of platelets and other materials to the implant. PI-b-PEO (poly[isoprene-b-ethylene oxide]), a block copolymer, may also be used with aluminiosilicate sol-gel precursors to fabricate the meso-porous ceramic in this and other embodiments. This material may self-assemble, due to thermodynamic forces, into ordered states based on the morphology of the copolymer. Once heat treatment is completed, the organics are burned off leaving behind a porous material. This sol-gel method allows for variation in the final material composition. Moreover, while a single block copolymer is used as a coating in this embodiment, the coating may be mixed with various other materials, for example, SIBS may be mixed with ~~placitaxel~~ paclitaxel, and ~~Polyethermine~~ polyetheramine may be mixed with Heparin.

Please replace paragraph **[0031]** with the paragraph below:

**[0031]** Figure 7 is a side view of an expandable coronary stent 70 in accord with another alternative embodiment of the present invention. Rather than use a catalyst to promote a decomposition of hydrogen peroxide or other material, this expandable stent has a modified cross section that promotes increased blood flow around the interface between the tissue and the stent walls, thereby taking advantage of ~~catalysen~~ catalase in the blood.

Please replace paragraph **[0038]** with the paragraph below:

**[0038]** Figure 10 is a cross-section of an implant wall 103 also in accord with the present invention. In Figure 10, as well as in the others, the implant may be made with ~~metalic~~ metallic

and ~~non-metalic~~ non-metallic materials. Likewise, the implant may be flexible, rigid or some variant of the two depending upon the desired application. In Figure 10 the implant is covered by TiO catalyst 104, IrO 101, and Bucky Paper 102.

Please replace paragraph **[0042]** with the paragraph below:

**[0042]** The bucky paper described throughout this disclosure may be manufactured in accord with the following procedure. SWNTs may be commercially obtained as an aqueous suspension from Rice University (Houston, TX). The nanotube mats or bucky paper may be made by vacuum filtration through a poly(tetrafluoro ethylene) filter (Millipore LS, 47mm in diameter) of ~4g of a ~0.6 mg/ml nanotube suspension further diluted by the addition of ~80 ml of deionised water. The NT mat may be washed with 2x100 ml deionised water and 1x100ml methanol followed by drying at vacuum and 70°C/12 hours. In so doing, the typical nanotube mat may be between 15 and 35 _m thick and have a bulk density of 0.3 to 0.4 g/cm$^3$, and a four point conductivity of 5000 S/cm. The nano-tubes (diameter 1.2-1.4 nm) may be synthesized by the laser vaporization method and purified by refluxing in nitric acid, washing and centrifugation followed by cross-flow filtration wherein the nano-tubes may spontaneously aggregate into bundles or "ropes" of ~10nm diameter and many microns in length. The nanotube mats may be peeled from the filter to produce free-standing films that may be used. In this example, measurement of actuation response was conducted using Seiko Instruments dynamic mechanical analyzer where a constant load was applied to the sample during immersion in the electrolyte and electrochemical cycling. Both triangular and square voltage waveforms were applied to the sample over various potential ranges. Both organic (0.1M tetrabutyl ammonium ~~hexaflurophosphate~~ hexafluorophosphate in acetonitrile; TBAHFP in ACN) and aqueous (1M to 5M sodium chloride or 1M hydrochloric acid) electrolytes were used.

Please replace paragraph **[0043]** with the paragraph below:

**[0043]** The various therapeutics that may be applied to the above implants and their coatings may include pharmaceutically active compounds, nucleic acids with and without carrier vectors such as lipids, compacting agents (such as histones), viruses (such as adenovirus, ~~andenoassociated~~ adenoassociated virus, retrovirus, lentivirus and _-virus), polymers, hyaluronic acid, proteins, cells and the like, with or without targeting sequences. Specific examples of therapeutic agents used in conjunction with the present invention include, for example, pharmaceutically active compounds, proteins, cells, oligonucleotides, ribozymes, anti-sense oligonucleotides, DNA compacting agents, gene/vector systems (i.e., any vehicle that allows for

the uptake and expression of nucleic acids), nucleic acids (including, for example, recombinant nucleic acids; naked DNA, cDNA, RNA; genomic DNA, cDNA or RNA in a non-infectious vector or in a viral vector and which further may have attached peptide targeting sequences; antisense nucleic acid (RNA or DNA); and DNA chimeras which include gene sequences and encoding for ferry proteins such as membrane translocating sequences ("MTS") and herpes simplex virus-1 ("VP22")), and ~~viral, liposomes~~ viral liposomes and cationic and anionic polymers and neutral polymers that are selected from a number of types depending on the desired application. Non-limiting examples of virus vectors or vectors derived from viral sources include adenoviral vectors, herpes simplex vectors, papilloma vectors, adeno-associated vectors, retroviral vectors, and the like. Non-limiting examples of biologically active solutes include anti-thrombogenic agents such as heparin, heparin derivatives, urokinase, and PPACK (dextrophenylalanine proline arginine chloromethylketone); antioxidants such as probucol and retinoic acid; angiogenic and anti-angiogenic agents and factors; anti-proliferative agents such as enoxaprin, angiopeptin, rapamycin, angiopeptin, monoclonal antibodies capable of blocking smooth muscle cell proliferation, hirudin, and acetylsalicylic acid; anti-inflammatory agents such as dexamethasone, prednisolone, corticosterone, budesonide, estrogen, sulfasalazine, acetyl salicylic acid, and mesalamine; calcium entry blockers such as verapamil, diltiazem and nifedipine; antineoplastic / antiproliferative / anti-mitotic agents such as paclitaxel, 5-fluorouracil, methotrexate, doxorubicin, daunorubicin, cyclosporine, cisplatin, vinblastine, vincristine, epothilones, endostatin, angiostatin and thymidine kinase inhibitors; antimicrobials such as triclosan, cephalosporins, aminoglycosides, and nitrofurantoin; anesthetic agents such as lidocaine, bupivacaine, and ropivacaine; nitric oxide (NO) donors such as linsidomine, molsidomine, L-arginine, NO-protein adducts, NO-carbohydrate adducts, polymeric or oligomeric NO adducts; anti-coagulants such as D-Phe-Pro-Arg chloromethyl ketone, an RGD peptide-containing compound, heparin, antithrombin compounds, platelet receptor antagonists, anti-thrombin antibodies, anti-platelet receptor antibodies, enoxaparin, hirudin, warfarin sodium, Dicumarol, aspirin, prostaglandin inhibitors, platelet inhibitors and tick antiplatelet factors; vascular cell growth ~~promotors~~ promoters such as growth factors, growth factor receptor antagonists, transcriptional activators, and translational ~~promotors~~ promoters; vascular cell growth inhibitors such as growth factor inhibitors, growth factor receptor antagonists, transcriptional repressors, translational repressors, replication inhibitors, inhibitory antibodies, antibodies directed against growth factors, bifunctional molecules consisting of a growth factor and a cytotoxin, bifunctional molecules consisting of an antibody and a cytotoxin; cholesterol-lowering agents; vasodilating agents; agents which interfere with endogenous vascoactive mechanisms; survival genes which protect against cell death, such as anti-apoptotic Bcl-2 family factors and Akt kinase; and combinations thereof. Cells can be of human origin (autologous or

allogenic) or from an animal source (xenogeneic), genetically engineered if desired to deliver proteins of interest at the insertion site. Any modifications are routinely made by one skilled in the art. Polynucleotide sequences useful in practice of the invention include DNA or RNA sequences having a therapeutic effect after being taken up by a cell. Examples of therapeutic polynucleotides include anti-sense DNA and RNA; DNA coding for an anti-sense RNA; or DNA coding for tRNA or rRNA to replace defective or deficient endogenous molecules. The polynucleotides can also code for therapeutic proteins or polypeptides. A polypeptide is understood to be any translation product of a polynucleotide regardless of size, and whether glycosylated or not. Therapeutic proteins and polypeptides include as a primary example, those proteins or polypeptides that can compensate for defective or deficient species in an animal, or those that act through toxic effects to limit or remove harmful cells from the body. In addition, the polypeptides or proteins that can be injected, or whose DNA can be incorporated, include without limitation, angiogenic factors and other molecules competent to induce angiogenesis, including acidic and basic fibroblast growth factors, vascular endothelial growth factor, hif-1, epidermal growth factor, transforming growth factor $\alpha$ and $\beta$, platelet-derived endothelial growth factor, platelet-derived growth factor, tumor necrosis factor $\alpha$, hepatocyte growth factor and insulin like growth factor; growth factors; cell cycle inhibitors including CDK inhibitors; anti-restenosis agents, including p15, p16, p18, p19, p21, p27, p53, p57, Rb, nFkB and E2F decoys, thymidine kinase ("TK") and combinations thereof and other agents useful for interfering with cell proliferation, including agents for treating malignancies; and combinations thereof. Still other useful factors, which can be provided as polypeptides or as DNA encoding these polypeptides, include monocyte chemoattractant protein ("MCP-1"), and the family of bone morphogenic proteins ("~~BMP's~~ BMPs"). The known proteins include BMP-2, BMP-3, BMP-4, BMP-5, BMP-6 (Vgr-1), BMP-7 (OP-1), BMP-8, BMP-9, BMP-10, BMP-11, BMP-12, BMP-13, BMP-14, BMP-15, and BMP-16. Currently preferred ~~BMP's~~ BMPs are any of BMP-2, BMP-3, BMP-4, BMP-5, BMP-6 and BMP-7. These dimeric proteins can be provided as homodimers, heterodimers, or combinations thereof, alone or together with other molecules. Alternatively or, in addition, molecules capable of inducing an upstream or downstream effect of a BMP can be provided. Such molecules include any of the "hedgehog" proteins, or the ~~DNA's~~ DNAs encoding them.